

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

1-28. (Canceled)

29. (Withdrawn) A method for identifying cDNA inserts encoding pheromone receptors comprising:

- (a) generating a cDNA library which contains clones carrying cDNA inserts from an individual vomeronasal sensory neuron;
- (b) hybridizing nucleic acid molecules of the clones from the cDNA libraries generated in step (a) with probes prepared from the individual vomeronasal neuron and probes from a second individual vomeronasal neuron or from a main olfactory epithelium neuron;
- (c) selecting clones which hybridized with probes from the individual vomeronasal neuron but not from the second individual vomeronasal neuron or the main olfactory epithelium neuron; and
- (d) isolating clones which carry the hybridized inserts, thereby identifying the inserts encoding pheromone receptors.

30. (Withdrawn) A method of claim 29, after step (c), further comprising:

- (a) amplifying the inserts from the selected clones by polymerase chain reaction;
 - (b) hybridizing the amplified inserts with probes from the individual vomeronasal neuron; and
 - (c) isolating the clones which carry the hybridized inserts, thereby identifying the inserts encoding the pheromone receptors.
31. (Withdrawn) A method of claim 29, wherein the probes are cDNA probes.
32. (Withdrawn) A method of claim 30, wherein the probes are cDNA probes.
- 33-93. (Canceled)
94. (Withdrawn) A transgenic nonhuman living organism comprising a homologous recombination knockout of the native pheromone receptor.
95. (Withdrawn) A transgenic animal of claim 94.
96. (Previously Presented) An isolated nucleic acid comprising consecutive nucleotides encoding a vertebrate pheromone receptor protein, wherein the receptor protein comprises seven transmembrane domains and is further characterized by at least one of the following characteristics:
- (a) the loop between the second and third transmembrane domains of the protein, the third

transmembrane domain, and the loop between the third and fourth transmembrane domains together comprise consecutive amino acids having the following sequence: -R, G, L or F, S or T or N, L, C or S, A or T, T or A or S, C, L or M, L, S or N or H, V or I, L or F, Q or W, A or T or M, I or F, I or T, L, S, P or S, R or K, S or K, S, C, L, A or T, K or T, F or Y, K, H or Y, K or N- (SEQ ID NO: 19);

(b) the loop between the fifth and sixth transmembrane domains of the protein, and the sixth transmembrane domain together comprise consecutive amino acids having the following sequence: -K, A or S or V, S, P, E or Q, Q, R, A, T, R or Q or E, T or S, I, L or M, M or L or I, L, M or R, S or T, F or L, F, V or G, V or L- (SEQ ID NO: 20); and

(c) the seventh transmembrane domain of the protein comprises consecutive amino acids having the following sequence: -Y, A, T, V or I or L, S, P or S, F or L, V or L, F or L- (SEQ ID NO: 21).

97. (Previously Presented) The isolated nucleic acid of claim 96, wherein the receptor protein is characterized by at least two of the characteristics of (a) through (c).
98. (Previously Presented) The isolated nucleic acid of claim 97, wherein the receptor protein is characterized by all of the characteristics of (a) through (c).
99. (Currently Amended) The isolated nucleic acid of claim 96, wherein the nucleic acid encodes (i) VN1 protein comprising consecutive amino acids having the sequence set forth in

~~SEQ. ID. NO:8, or a protein selected from the group
consisting of:~~

- ~~i) VN1 protein comprising consecutive amino acids
having a sequence identical to the sequence set
forth in SEQ ID NO: 8,~~
- ~~ii) VN2 protein comprising consecutive amino acids
having a sequence identical to the sequence set
forth in SEQ ID NO: 9,~~
- ~~iii) VN3 protein comprising consecutive amino acids
having a sequence identical to the sequence set
forth in SEQ ID NO: 10,~~
- ~~iv) VN4 protein comprising consecutive amino acids
having a sequence identical to the sequence set
forth in SEQ ID NO: 11,~~
- ~~v) VN5 protein comprising consecutive amino acids
having a sequence identical to the sequence set
forth in SEQ ID NO: 12,~~
- ~~vi) VN6 protein comprising consecutive amino acids
having a sequence identical to the sequence set
forth in SEQ ID NO: 13,~~
- ~~vii) VN7 protein comprising consecutive amino acids
having a sequence identical to the sequence set
forth in SEQ ID NO: 14, and~~

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~~viii)~~ (ii) a protein that shares between 47% and 87% amino acid sequence identity therewith ~~with any one of the proteins of i) vii)~~.